Ductless Mini Split

Installation & Owner's Manual

Document Version: 11/2016

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2 For Your Records

Outdoor Model # _____

Outdoor Serial # _____

This can be found on the outdoor unit or on the sticker on the side of the box

Zone 1

Indoor Air Handler Model # _____

Indoor Air Handler Serial # _____

This can be found on the indoor air handler or on the sticker on the side of the box

If applicable ...

Zone 2

Indoor Air Handler Model # _____

Indoor Air Handler Serial # _____

Zone 3

Indoor Air Handler Model # _____

Indoor Air Handler Serial # _____

Zone 4

Indoor Air Handler Model # _____

Indoor Air Handler Serial # _____

NOTE These model numbers may differ from the model numbers on the order confirmation email or website. The outdoor unit and indoor unit combine together to formulate the model number BMKHXXXXXXXXXX on the order confirmation and website.

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3 Applicable Blueridge Models

This document applies to the following Blueridge Ductless Heat Pump featuring High Efficiency Inverter Technology models:

BMKH24M-NDG3

All Blueridge Multizone Heat Pump Systems

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4 Important Safety instructions and Notices

- While 90% of the mechanical work can be done by a mechanically inclined individual, the final 10% consisting of electrical wiring, vacuuming, leak testing, and starting the system should be done by a qualfied professional.

- Due to the potential for injury, any troubleshooting or diagnosing should be done by a qualified professional. This includes troubleshooting with refrigerant, electricity, or unit operation.

- National and local standards following electrical and HVAC must be used when installing the equipment.

- This Blueridge Heat Pump System is a first class electric appliance. It must be properly grounded to avoid electric shock.

- Use caution when the indoor air handler's front panel door is open. Please refrain from extending fingers, air temperature thermometers, or any foreign objects into the air handler. There are sharp and moving parts in the air handler and keeping objects out of the air handler prevents both personal injury and damage to the equipment.

- When removing the indoor air handler's filter for regular maintenance, please avoid touching the fins. This not only keeps the fins in optimal shape, but avoids risk of injury.

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- If any malfunction of the Heat Pump System occurs, take note of any error code or flashing lights that may be displayed on the indoor unit, turn the system off and disconnect the power immediately. Only a qualified person should power on and troubleshoot the system.

NOTE Your actual heat pump system and related devices may differ from the images shown in this manual. This appliance is not intended for use other than stated in this manual. Proper care should be taken to ensure safety.

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5 Installation Tools

- ☐ Standard Wrench
- ☐ Adjustable/Crescent Wrench
- ☐ Torque Wrench
- ☐ Hex Keys or Allen Wrenches
- ☐ Drill & Drill Bits
- ☐ Hole Saw
- ☐ Pipe Cutter
- ☐ Screw Drivers (Phillips & Flat blade)
- ☐ Menifold and Gauges
- ☐ Level
- ☐ R410A Flaring Tool
- ☐ Clamp on Amp Meter
- ☐ Vacuum Pump
- ☐ Safety Glasses
- ☐ Work Gloves
- ☐ Refrigerant Scale
- ☐ Micron Gauge

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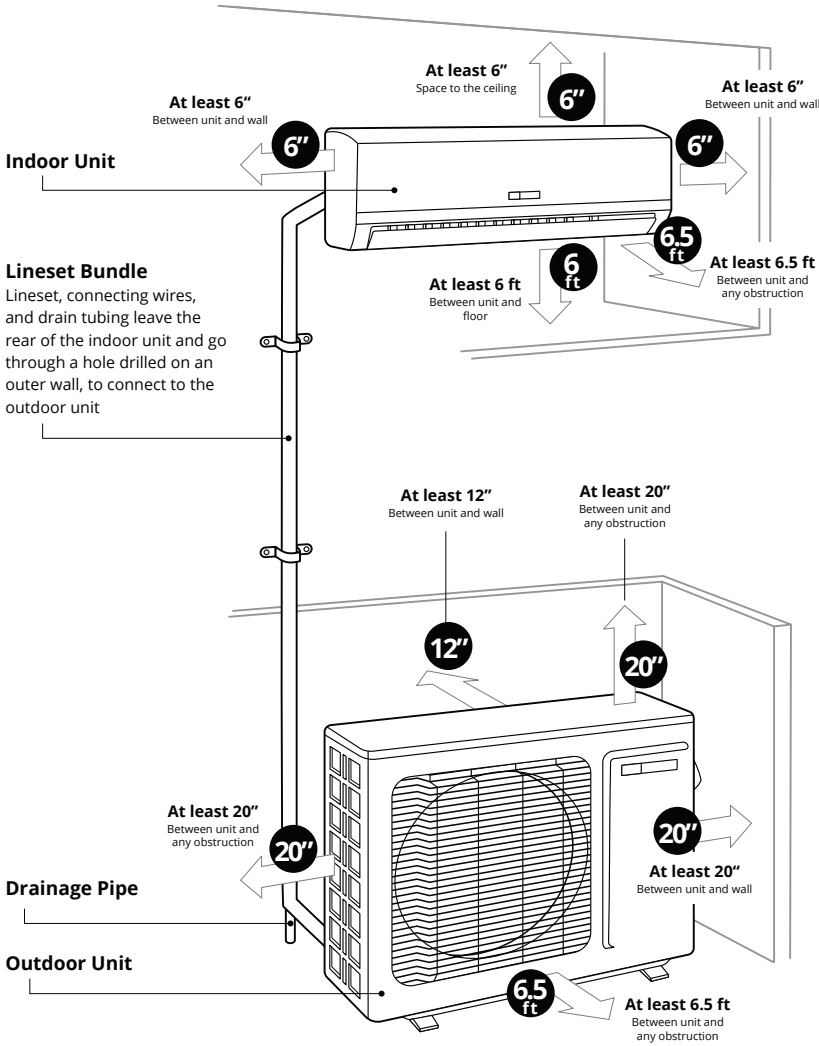
6 Unit Installation Clearances



Img 1 | Indoor and Outdoor Unit Clearances

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7 Installation of the Indoor Air Handler

Mechanical Installation of the Air Handler

1 Choose a Location

Blueridge Ductless minisplits are extremely versatile for the fact that they can be retrofitted in a limitless number of applications. There are a few restrictions to keep in mind when it comes to selecting the location of the indoor air handler. When selecting a location, please:

- Select a location that doesn't have any obstruction near the air inlet or outlet of the air handler.
- Choose a location where the condensation that the unit produces can be dispersed easily and safely. If gravity cannot rid the unit's condensation, a condensate pump would be required in installation.
- Ensure that the multiconductor wire can be run to the outdoor unit, as this unit obtains power from the outdoor unit.
- Select a location that is out of the reach of people and foot traffic.
- The location should be able to support the weight of the air handler and allow the air handler to be securely affixed to the wall, in order to reduce vibration during operation.
- The air handler should not be installed above any other electric appliances. For optimal performance, the air handler should be installed at least 6 feet above the floor.

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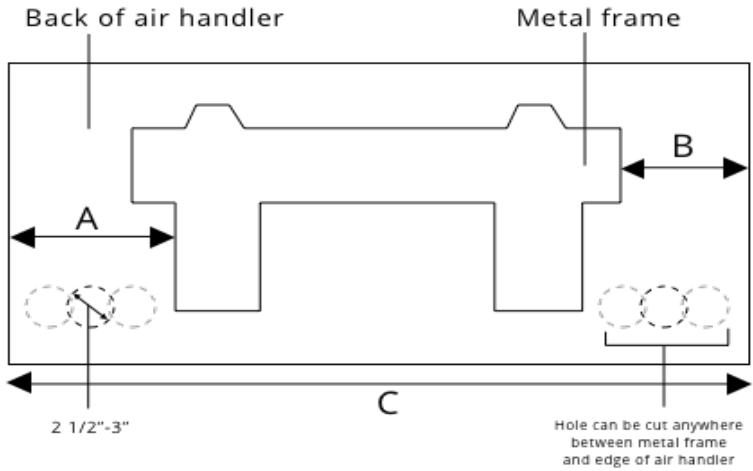
❷ Mount the Air Handler's Bracket

- Hold the air handler's wall mounting frame on the wall. Use a level to ensure the mounting frame is horizontally level, and use a pencil to mark the desired screw holes.
- Drill the marked holes to create a pilot hole.
- Affix the wall mounting frame to the wall using appropriately sized self tapping screws w/anchors. Check to ensure the wall mounting frame is firmly affixed to the wall by pulling on it. If need be, drill additional holes to ensure the wall mounting frame is securely mounted to the wall.



	A	B	C
9K, 12K	8 1/4″	6 1/2″	33 1/4″
18K	9 1/4″	2″	37″
24K	7 3/4″	5 7/8″	39 1/2″
30K, 36K	13 1/8″	9 3/4″	52.25

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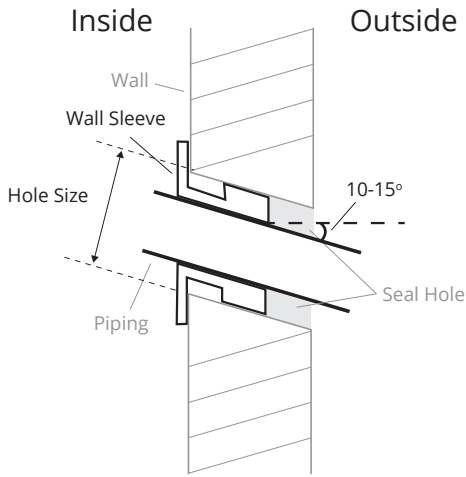
❸ Drill the piping hole in the wall



Img 2 | Side view of hole drilled in wall

- Choose the location of the piping hole based on the desired left or right side outlet from the air handler. This hole will need to be large enough to accommodate the copper lines, multiconductor wire, and drain tube. Most customers purchase and install a wall sleeve ranging from 2.5" to 3" in size to accomodate the copper, wiring, and drain tubing. Cut the hole in the wall using a 2.5" or 3" hole saw.

- In order to help the condensate drain through this hole, slant this piping hole approximately 5-10 degrees downward, by angling your drill as shown in Img 2.

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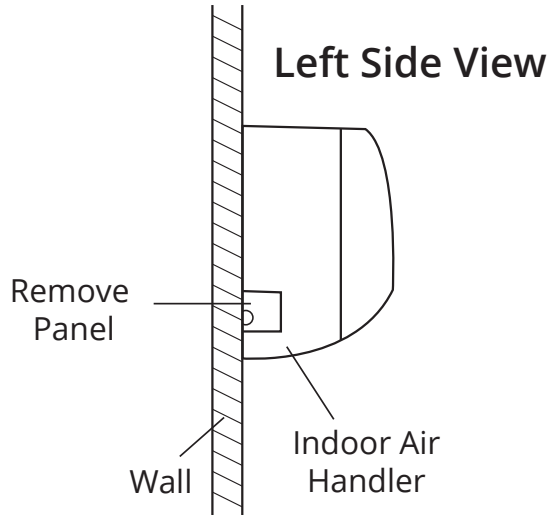
4 Piping Orientation



Img 3 | View of side panel locations wiring can be run through

- The pipes can be led in four different directions. They can be orientated from the right of the unit, left of the unit, right rear of the unit (straight out the piping hole in Step Three), and the left rear of the unit (straight out the piping hole in Step Three).
- If using the left or right orientation for routing the piping, knock out the appropriate side's panel and route the piping.

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5 Connecting the Piping

- Use caution when prepping the air handler to connect the copper line set. The air handler will be be pressurized with dry nitrogen, which keeps the unit free of moisture and indicates that the air handler doesn't have refrigerant leaks. When removing the plugs, the nitrogen will release. If the nitrogen is not present in the air handler at time of installation, stop installation and call Alpine's technical support.

- Pair the pipe joint of the air handler with the flared end of the copper line set. If the copper pipes aren't already flared, please reference the Copper Line Flaring section of this document (page 54).

- Tighten the union nut (compression fitting) by hand.

- Place the open-ended wrench on the pipe joint and place the torque wrench on the union nut (compression fitting). Tighten the union nut according to the chart below:

Hex Nut Diameter (in)	Tightening Torque (ft-lbs)
1/4	10-13
3/8	25-30
1/2	36-45
5/8	50-60

- If the lines are not already insulated, wrap them with insulation and tape the insulation in place.

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6 Draining

- The drain hose can be connected to either side of the air handler. There is a plug on one end and a drain hose on the other. To properly drain the indoor air handler, connect the drain tube to the same side as the copper lines. Insert the drain plug in the other side.
- Insulate the Drain Tubing.

7 Connect the multiconductor wire

- Open the front panel of the indoor air handler, remove the screw on the wiring cover, and remove the cover.
- There is a cable-cross hole on the back of the indoor air handler. Run the power connection (multiconductor) through this hole and pull it from the front side as seen in Img 4a.
- Remove the wire clip and connect the wires to each terminal. Please note that the associating wires MUST match the terminals of the outdoor unit. Color coded multiconductor is highly recommended as seen in Img 4b.
- Put the wiring cover back in place and tighten the screw.
- Close the front panel of the indoor air handler.

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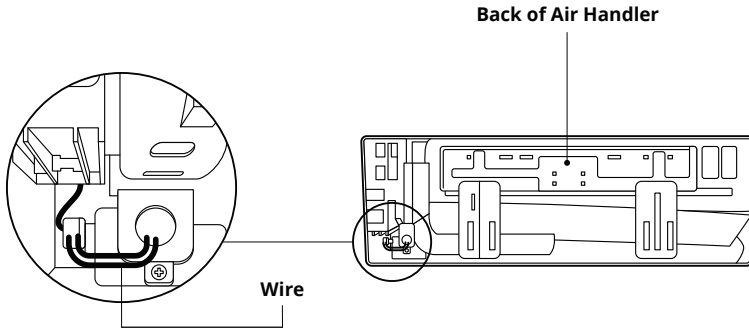
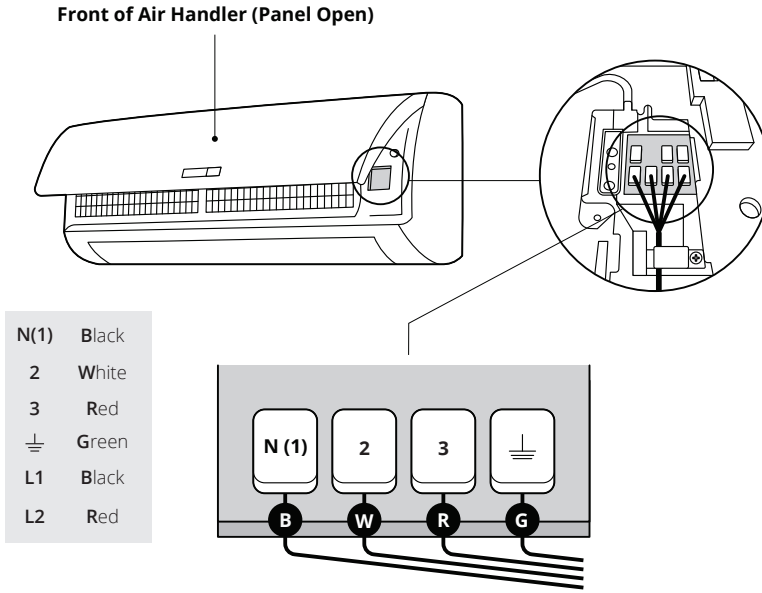


Img 4a | Pull wire through the back of the unit before connecting



Img 4b | Connecting Wires on the indoor unit

NOTE

- All wires of both the indoor air handler and outdoor heat pump should be connected by a professional.
- Do not extend high or low voltage wiring during installation. Avoid wire extension by using the proper length of wire.
- Always use a circuit breaker when installing any Blueridge Ductless Mini Split.

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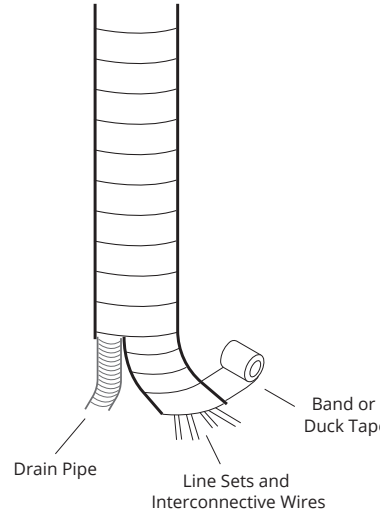
8 Band the copper lines, wire, and drain hose

- Bind the copper lines, the multi-conductor wire, and drain hose up with a band as seen in Img 5.
- Take into consideration that the drain tubing will not run the entire distance as the copper lines, so allow the drain tubing to escape this binding where the contractor sees fit.



Img 5 | Banding wires

9 Hang the Indoor Air Handler

- Feed the bound pipes through the wall sleeve or piping hole.
- Hang the indoor air handler on the wall mounting frame.
- Use sealing gum or expanding foam to ensure there is no air exchange between the wall sleeve or piping hole and the exterior of the space. This should be a very tight seal.
- Ensure the indoor air handler is firmly installed on the wall.

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8 Installation of a Single Zone Outdoor Unit

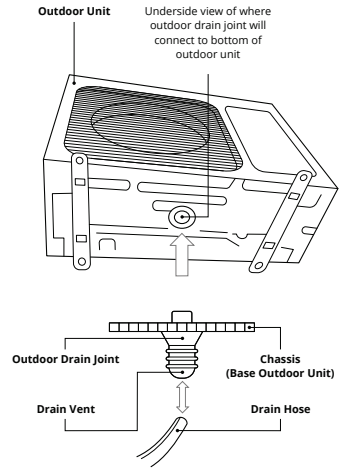
Mechanical Installation of the Outdoor Unit

1 Select a Location

- Select the outdoor unit's installation location based on the home's structure, local codes, and convenience of installation. (See Page 8)
- Ideally, these outdoor units are installed in a location that is well ventilated and dry, in which the outdoor unit will not be exposed directly to sunlight and wind.
- Reference the Indoor and Outdoor Installation Clearances page and comply with these clearances.

2 Connect the Drain Joint (Optional)

- Connect the outdoor drain joint into the hole on the bottom of the outdoor unit's chassis.
- Connect the drain hose to this drain joint and direct the flow of condesation wherever desired.
- While this step is optional, if it is not completed, the condensation from the unit will simply drip out the bottom of the outdoor unit.


Outdoor Unit
Underside view of where outdoor drain joint will connect to bottom of outdoor unit
Outdoor Drain Joint
Chassis (Base Outdoor Unit)
Drain Vent
Drain Hose

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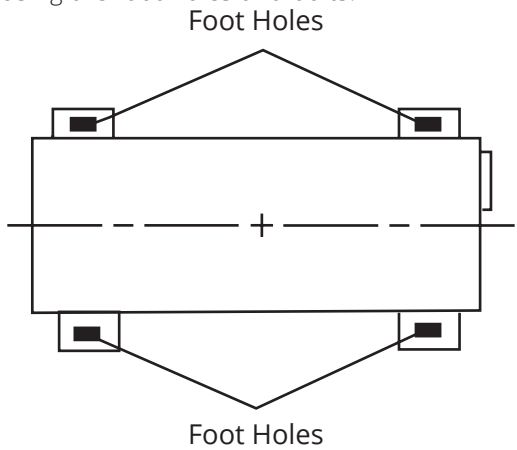
❸ Mount the Outdoor Unit

- Mount the outdoor unit to a concrete pad, plastic pad, or wall bracket of your choice, using the foot holes and bolts.



Img 7 | Footholes located at the botton of the outdoor unit

❹ Connect the Copper Lines

- Remove the screw on the right handle of the outdoor unit.
- Slide the cover down to take the panel off and expose the valves.
- Remove the screw cap of the valves.
- Connect the pipe joint of the outdoor unit with the flared end of the copper line set. If the copper pipes are not flared already, please reference the Copper Line Flaring section of this document (page 54).
- Tighten the union nut (compression fitting) by hand.
- Place the open-ended wrench on the pipe joint and place the torque wrench on the union nut (compression fitting). Tighten the union nut according to the chart on the next page:

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Hex Nut Diameter (in)	Tightening Torque (ft-lbs)
1/4	10-13
3/8	25-30
1/2	36-45
5/8	50-60

- If the lines are not already insulated, wrap them with insulation and tape the insulation in place.

❺ Wiring the Air Handlers to the outdoor unit

- Remove the wire clip on the outdoor unit.
- Connect the multi conductor wire that is run from the indoor air handler to the associating terminals on the outdoor unit. Color coded multi-conductor is highly recommended to ensure that the wires have been connected correctly.

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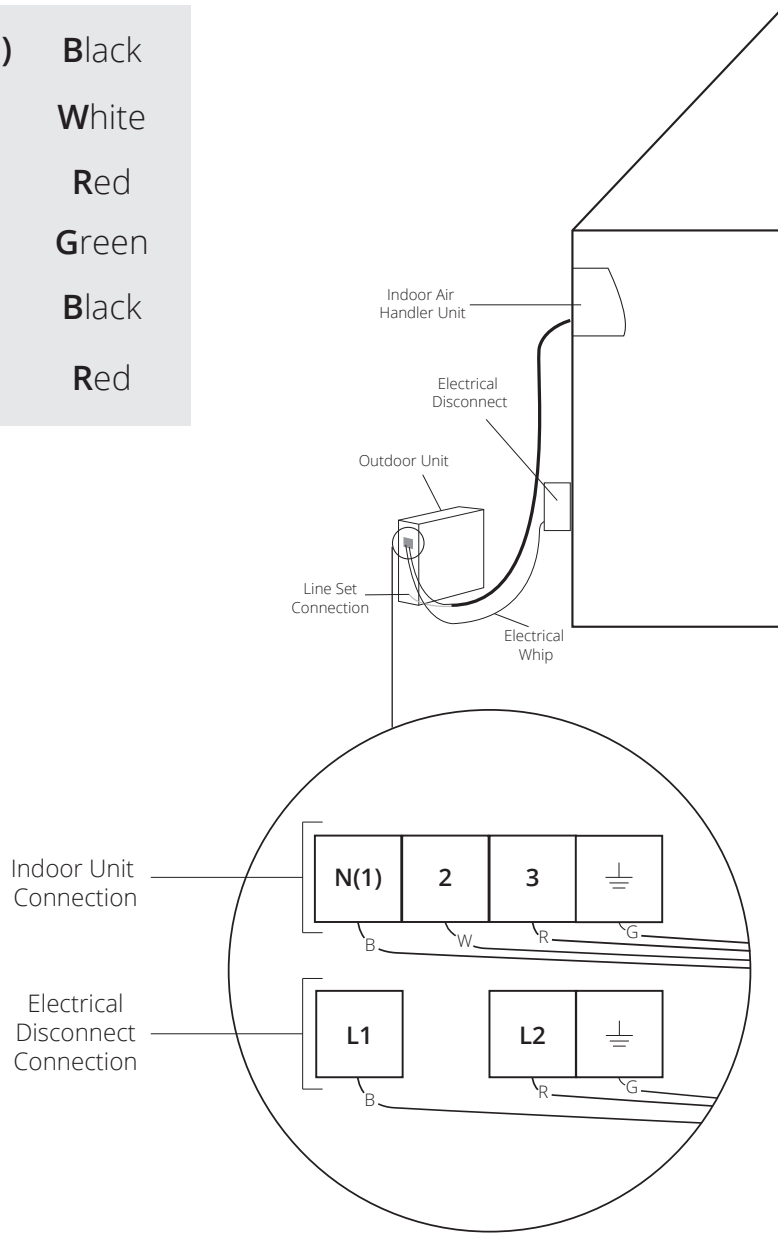
N(1)	Black
2	White
3	Red
⏚	Green
L1	Black
L2	Red



Img 8 | How to wire the outdoor unit for Single Zone Units

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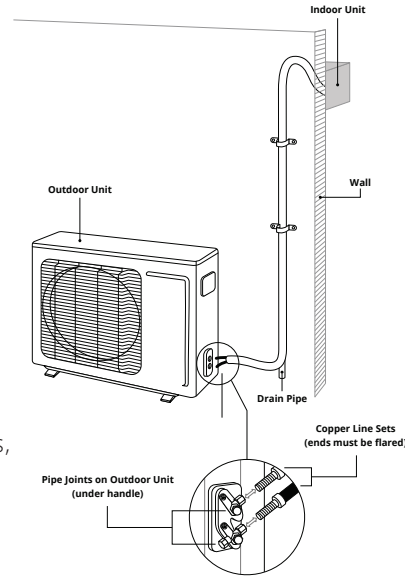
6 Copper Line Presentation

- The copper lines should be run along the wall and as hidden as possible. Minimum semi diameter of bending the pipe is 4 inches.

- If the outdoor unit is higher than the wall piping hole, a U-Shaped curve should be bent into the copper lines before the pipe goes into the wall. This prevents moisture from running down the lines and into the conditioned space.

- Lineset covers are sold as the optimal accessory, which cover the copper lines, drain tubing, and multiconductor wire. These sets are fully customizable, and in most cases, can be painted to match the exterior of the home.



Img 9 | Connecting Copper Lines

If installing a single zone Blueridge Minisplit, please skip to Leak Detection to continue installation on PAGE 27.

The next section is for Blueridge Multizone customers.

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9 Installation of a Multizone Outdoor Unit

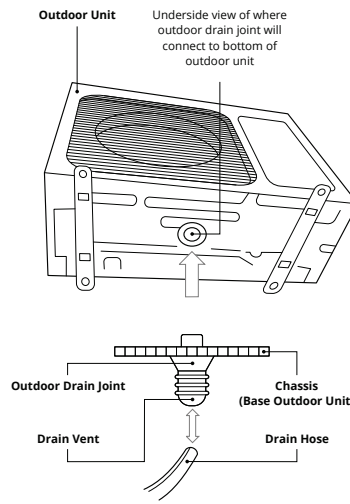
Mechanical Installation of Multizone Outdoor Unit

1 Choose a Location

- Select the outdoor unit's installation location based on the home's structure, local codes, and convenience of installation.
- Ideally, these outdoor units are installed in a location that is well ventilated and dry, in which the outdoor unit will not be exposed directly to sunlight and wind.
- Reference the Indoor and Outdoor Installation Clearances page (page 8) and comply with these clearances.

2 Connect the Drain Joint (Optional)

- Connect the outdoor drain joint into the hole on the bottom of the outdoor unit's chassis.
- Connect the drain hose to this drain joint and direct the flow of condesation whereever desired.
- While this step is optional, if it is not completed, the condensation from the unit will simply drip out the bottom of the outdoor unit.


Outdoor Unit
Underside view of where outdoor drain joint will connect to bottom of outdoor unit
Outdoor Drain Joint
Chassis (Base Outdoor Unit)
Drain Vent
Drain Hose

Img 10 | Location of Drain Joint

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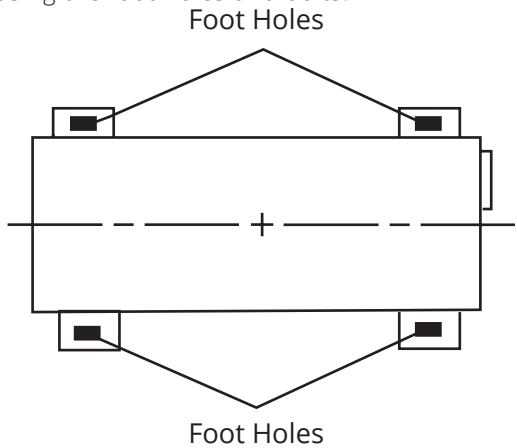
❸ Mount the Outdoor Unit

- Mount the outdoor unit to a concrete pad, plastic pad, or wall bracket your choice, using the foot holes and bolts.



Img 11 | Footholes located at the botton of the outdoor unit

❹ Connect the Copper Lines

- Remove the screw on the right handle of the outdoor unit.
- Slide the cover down to take the panel off and expose the valves.
- Remove the screw cap of the valves.
- Connect the pipe joint of the outdoor unit with the flared end of the copper line set. If the copper pipes are not flared already, please reference the Copper Line Flaring section of this document. (See page 54)
- Tighten the union nut (compression fitting) by hand.
- Place the open-ended wrench on the pipe joint and place the torque wrench on the union nut (compression fitting). Tighten the union nut according to the chart on the next page:

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Hex Nut Diameter (in)	Tightening Torque (ft-lbs)
1/4	10-13
3/8	25-30
1/2	36-45
5/8	50-60

- If the lines are not already insulated, wrap them with insulation and tape the insulation in place.

❺ Wiring the Air Handlers to the outdoor unit

- Remove the wire clip on the outdoor unit.
- Connect the multi conductor wire that is run from the indoor air handler to the associating terminals on the outdoor unit. Color coded multi-conductor is highly recommended to ensure that the wires have been connected correctly.
- It is essential that the multiconductor is connected to the same connection port as the matching copper lines for each zone. The air handler with copper lines in port A, must also have the multiconductor wiring connected to terminal block A.
- Complete this step individually for each zone.

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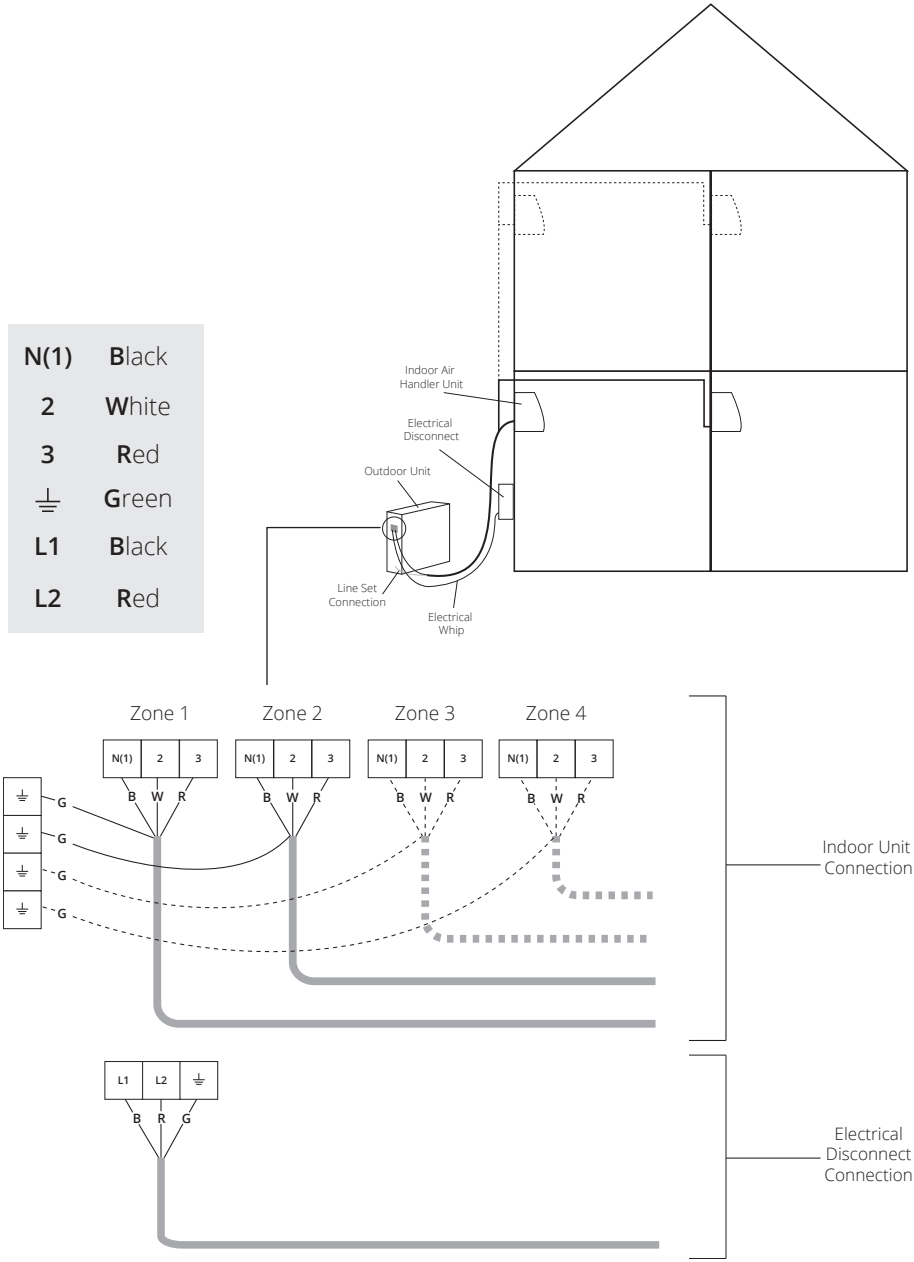

Img 12 | How to wire the outdoor unit for Multi Zone Units

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6 Copper Line Presentation

- The copper lines should be run along the wall and as hidden as possible. Minimum semi diameter of bending the pipe is 4 inches.

- If the outdoor unit is higher than the wall piping hole, a U-Shaped curve should be bent into the copper lines before the pipe goes into the wall. This prevents moisture from running down the lines and into the conditioned space.

- Lineset covers are sold as the optimal accessory, which cover the copper lines, drain tubing, and multiconductor wire. These sets are fully customizable, and in most cases, can be painted to match the exterior of the home.

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10 Leak Detection

- The refrigerant system must be completely sealed in order for the Blueridge Ductless System to perform optimally and prevent damage to the equipment.
- If a refrigerant detector is not available, soap and water can be used.
- The lineset(s) should be pressurized using dry nitrogen, 100-200 psig. Then using a soap bubble solution, spray down all flare joints, and watch for bubbles to appear. If any bubbles are present, tighten the flare nut, or if nut is already tight, you may have to disconnect, and inspect flare or re-flare the copper.

NOTE Leakage detection is extremely important. If a leak is discovered after the charge (refrigerant) has been released, the system cannot be topped off at that point. Any remaining refrigerant would need to be removed, a vacuum pulled on the entire unit, and the system fully recharged by weight.

11 Vacuuming

Single Zone

Vacuuming the lines to rid the air and moisture is essential in every Blueridge Minisplit System. This can be done using a vacuum pump, gauges, and thorough training, which prevents personal injury and/or damage to the equipment.

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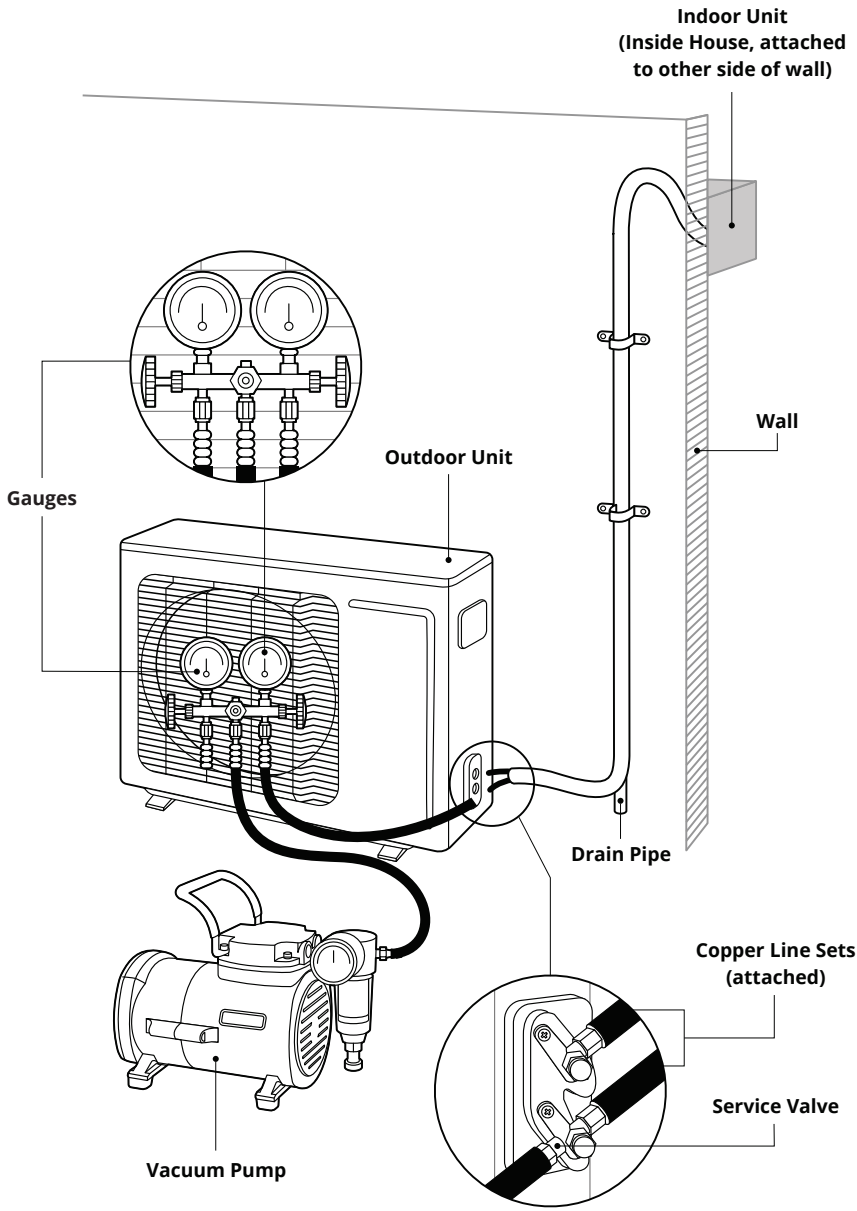

Img 13 | Vacuuming the lines

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Single Zone (cont)

- After the copper lines have been connected, and the pressure test is complete, you may connect your vacuum pump, manifold gauges, micron gauges and evacuate the lines.
- Once it is confirmed that the joints have a proper connection, pull a vacuum down to 500 microns.
- After the vacuum is complete, close manifold gauge valve(s), and open both the service valves fully, release the refrigerant into the system, and start the system.
- Ensure the gauges do not show any restriction
- Remove gauges once the system is operating properly.

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Multizone:

- Connect each zone's copper lines one at a time. After connecting the first set of copper lines, and the pressure test is complete, connect your manifold gauges, micron gauge, and vacuum pump and evacuate the lineset.
- Once it is confirmed that the joints have a proper connection, pull a vacuum down to 500 microns.
- After the vacuum is complete, close manifold gauge valve(s), and open both the service valves fully, release the refrigerant into the system, and start the system.
- Move onto the next zone's copper lines, connect them, and repeat steps 1-4.

NOTE It is harmful to remove the gauges while the lineset is under vacuum. Keep the gauges connected until the vacuum is complete and the refrigerant has been released into the lineset.

- Once all of the copper lines are connected, vacuumed down to 500 microns, and the refrigerant is released, start the system.
- Ensure the gauges do not show any restriction
- Remove gauges once the system is operating properly.

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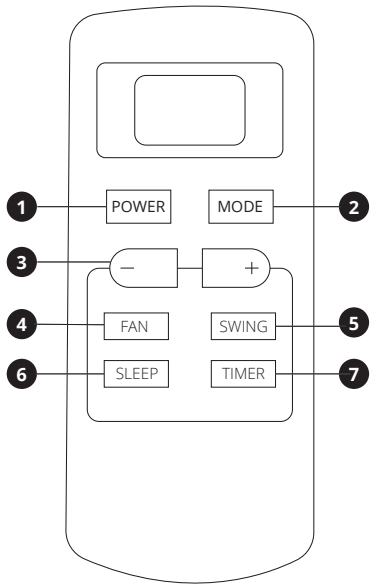
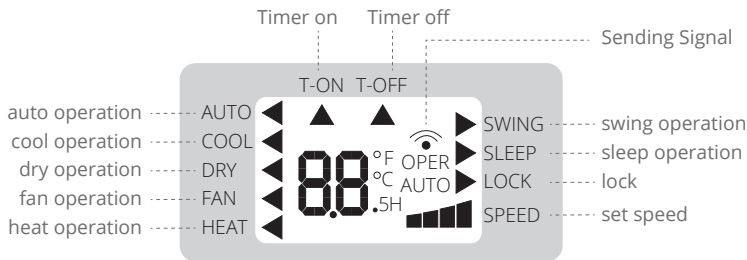
12 Remote Control

12.1 Blueridge 15 SEER Unit

**Units higher than 15 SEER go to page 34*



1. ON/OFF button
2. MODE button
3. +/- button
4. FAN button
5. SWING button
6. SLEEP button
7. TIMER button



Img 14 | 15 Seer Unit Remote

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NOTE

- When the power is connected (stand by condition), you can operate the air conditioner using the remote control.
- When the unit is on, each time you press a button on the remote controller, the sending signal icon " " on the display of remote control will blink once. If the air conditioner beeps, that means the signal has been sent.
- When unit is off, set temperature will be displayed on remote controller (If the light of indoor unit is turned on, the corresponding icon will be displayed); When the unit is on, it will display the icon of the on-going function.

Buttons on Remote Control

1 On/Off Button

Press the ON/OFF Button to turn the unit ON/OFF

2 MODE Button

Pressing this button once can select your required mode circularly as below (the corresponding icon "◀" will be lit up after the mode is selected):

AUTO ▶ COOL ▶ DRY ▶ FAN ▶ HEAT(Only for models with heating funtion)

- When selecting **auto mode**, the air handler will operate automatically, according to ambient temperature. The set temps are 77°F for cooling and 68°F for heating and they cannot be adjusted and won't be displayed. Press the FAN button to adjust the fan's speed.
- When selecting **cool mode**, the air handler will provide cooling. Press + or - button to adjust set temperature. Press the FAN button to adjust the fan's speed.

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- When selecting **dry mode**, the air handler will run in air conditioning, but with a low fan sped to remove excess humidity. In dry mode, the fan speed cannot be adjusted.

- When selecting **fan mode**, the air handler will only operate the fan. Press the FAN button to adjust the fan speed.

- When selecting **heat mode**, the air handler provides heat. Press + or - button to adjust the set temperature. Press the FAN button to adjust the fan speed.

NOTE

- When starting heating mode, the indoor unit will delay 1-5 minutes before warm air will flow (actual delay time will depend on indoor ambient temperature).
- Set temperature range from remote controller: 60.8 - 86°F ; Fan speed: auto, low speed, medium speed, high speed.

❸ +/- Button

- Pressing the + or - button once will increase or decrease set temperature by 1°F (°C). Hold the + or - button on the remote controller to choose temperature quickly. Release the button after your desired set temperature is reached.

- When setting Timer On or Timer Off, press + or - button to adjust the time. (See TIMER Button for setting details)

❹ FAN Button

Pressing this button can select the fan speed circularly as AUTO, SPEED 1(▂), SPEED 2(▂▃), SPEED 3 (▂▃▅), SPEED 4 (▂▃▅▇).

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NOTE

- Under Auto speed, air conditioner will select proper fan speed automatically according to ambient temperature.
- Fan speed cannot be adjusted under Dry Mod.

5 SWING Button

Press this button to turn on up & down air swing.

6 SLEEP Button

Under the Cool, Heat, and Dry modes, press the sleep button to engage sleep mode. Press this button to cancel Sleep mode. Under the Fan and Auto modes this function is unavailable.

SLEEP MODE

The unit will automatically adjust to room temperature during your sleep time. This slight change in temperature will not affect your comfort level due to natural effects that sleeping has on the body, but it will save on energy consumption and lower your electric bill. Press the SLEEP button to select Sleep Mode. The SLEEP icon will appear.

In Cool or Dry modes: The unit will run at current room setpoint for 1 hour. After 1 hour, the setpoint will increase by 2°F. After 2 hours, the setpoint will increase by 4°F and maintain this setpoint until Sleep Mode is cancelled.

In Heat Mode: The unit will run at current room setpoint for 1 hour. After 1 hour, the setpoint will decrease by 2°F. After 2 hours, the setpoint will decrease by 4°F and maintain this setpoint until Sleep Mode is cancelled.

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7 TIMER Button

- When the unit is on, press the timer button to set Timer Off. T-OFF and H icon will be blinking. Within 5s, press the + or - button to adjust the time for Timer Off. Pressing + or - button once will increase or decrease the time by 0.5h. Hold the + or - button for 2s and the time will change quickly. Release the button after your required set time is reached. Then press TIMER button to confirm the set time. T-OFF and H icon will stop blinking.

- When the unit is off, press the timer button to set Timer On. T-ON and H icon will be blinking. Within 5s, press the + or - button to adjust the time for Timer On. Pressing + or - button once will increase or decrease the time by 0.5h. Hold the + or - button for 2s and the time will change quickly. Release the button after your required set time is reached. Then press the TIMER button to confirm the set time. T-ON and H icon will stop blinking.

- Cancel Timer On/Off: If the Timer function is set up, press the TIMER button once to review the remaining time. Within 5s, press the TIMER button again to cancel this funtion.

NOTE

- Range of time setting is: 0.5-24h.
- The interval between two motions can't exceed 5s, otherwise the remote controller will exit setting status.

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Function for combination buttons

❶ Child lock function

Press the "+" and "-" buttons simultaneously to turn on or turn off the child lock function. When the child lock function is started up, LOCK indicator on remote controller is ON. If any buttons are pressed while the lock indicator is ON, the remote controller will not send the signal.

❷ Temperature display switchover function

Pressing "-" and "MODE" buttons simultaneously will change the remote back and forth from °C and °F. The unit most be OFF for this function to work.

Operation Guide

1. Once the power is connected, Press the ON/OFF button on the remote controller to power the unit on.
2. Press the "MODE" button to select your desired mode: AUTO, COOL, DRY, FAN, HEAT.
3. Press the "+" or "-" button to set your desired temperature. (Temperature cannot be adjusted under auto mode).
4. Press the "FAN" button to set your desired fan speed: auto, low, medium, and high speed.
5. Press the "SWING" button to select the fan blowing angle.

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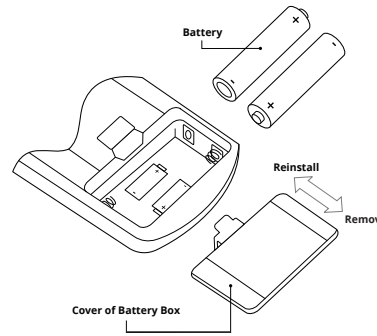
Replacement of batteries in remote control

1. Press the back side of remote controller on the spot marked "", and pull off the battery box.
2. Replace two No.7 (AAA 1.5V) dry batteries and make sure the positions or + and - polar are correct.
3. Reinstall the cover of the battery box.



Img 15 | Back of 15 Seer Unit Remote

NOTE

- During Operation, point the remote controller signal sender at the indoor air handler.
- The distance between signal sender and receiving window should be no more than 26 feet, and there should be no obstacles between them.
- Signal may be interfered easily in the room where there is fluorescent lamp or wireless telephone; remote controller should be close to indoor unit during operation.
- Replace both batteries with new AAA 1.5V at the same time.
- To avoid damage to the remote, please remove the batteries if it won't be used for a long time.
- If the display on the remote controller is fuzzy or there's no display, please replace the batteries

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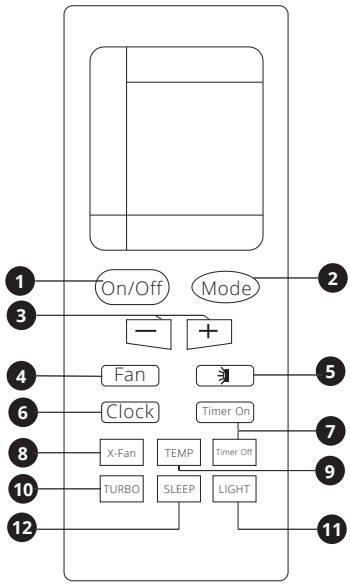
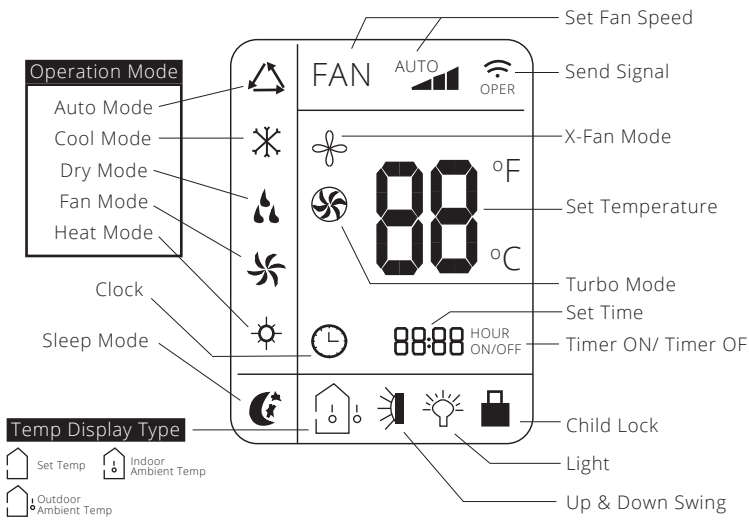
12.2 Blueridge Multizone, 18, 20, and 22 SEER Models



1. ON/OFF button
2. MODE button
3. +/- button
4. FAN button
5. SWING button
6. SLEEP button
7. TIMER button
8. X-FAN button
   Note: X-FAN is the same with BLOW
9. TEMP button
10. TURBO button
11. LIGHT button
12. SLEEP button



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NOTE

- When the power is connected (stand by condition), you can operate the air conditioner using the remote control.
- When the unit is on, each time you press a button on the remote controller, the sending signal icon "" on the display of remote control will blink once. If the air conditioner beeps, that means the signal has been sent.
- When unit is off, set temperature will be displayed on remote controller (If the light of indoor unit is turned on, the corresponding icon will be displayed); When the unit is on, it will display the icon of the on-going function.

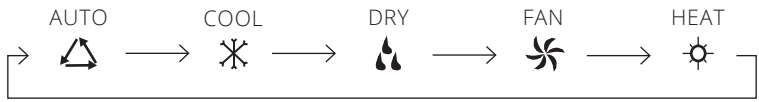
Buttons on Remote Control

1 On/Off Button

Press this button to turn the air handler on and off. After turning on the air conditioner, operation indicator "⏻" on the indoor unit's display is ON (green indicator - the color is different for different models), and the indoor unit will make a sound.

2 MODE Button

Press the mode button to select your required operation mode.



- When selecting **auto mode**, the air handler will operate according to ambient temperature. The set temperature are 77°F for cooling and 68°F for heating and cannot be adjusted or displayed. Press the "FAN" button to adjust the fan speed and press "" to adjust the blowing angle.

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- After selecting **cool mode**, the air handler will operate under cool mode. Cool indicator "❄" on indoor unit is ON. Press "+" or "-" button to adjust the set temperature. Press the "FAN" button to adjust the fan speed. Press "" button to adjust the fan blowing angle.

- When selecting **dry mode**, the air handler will operate in air conditioning, but with a low fan speed to remove excessive humidity. Dry indicator "" on indoor unit is ON. In dry mode, the fan speed cannot be adjusted. Press "" button to adjust the blowing angle.

- When selecting **fan mode**, the air handler will operate the fan. All indicators are OFF, but operation indicator lights are ON. Press the "FAN" button to adjust the fan speed. Press "" button to adjust the blowing angle.

- When selecting **heating mode**, the air handler will provide heating. The Heat indicator "☼" on indoor unit is ON. Press the "+" or "-" buttons to adjust the set temperature. Press the "FAN" button to adjust the fan speed. Press "" button to adjust the fan blowing angle.

NOTE

- When starting heating mode, the indoor unit will delay 1-5 minutes before warm air will flow (actual delay time will depend on indoor ambient temperature).
- Set temperature range from remote controller: 60.8 - 86°F ; Fan speed: auto, low speed, medium speed, high speed.

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❸ +/- Button

- Press the "+" or "-" buttons once to increase or decrease the set temperature 1°F. Hold the "+" or "-" button on the remote controller to change the temperature quickly. Release the button after your desired temperature is reached. (Temperature cannot be adjusted under auto mode).
- When setting the TIMER ON, TIMER OFF or CLOCK, press "+" or "-" button to adjust time. (Refer to CLOCK, TIMER ON, TIMER OFF buttons).

❹ FAN Button

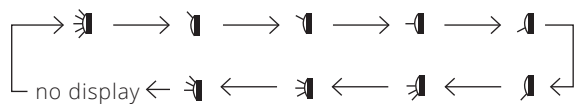
Pressing this button can select the fan speed circularly as AUTO, SPEED 1(▂), SPEED 2(▂▃), SPEED 3 (▂▃▅), SPEED 4 (▂▃▅▇).

NOTE

- Under Auto speed, the air handler will select a proper fan speed automatically according to the ambient temperature.
- Fan speed on dry mode is low speed.

❺ Button

This button selects the swing angle. The fan blow angle can be selected circularly as below:



(horizontal louvers stops at current position)

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- When selecting "", the air handler's horizontal louver will automatically swing up & down at maximum angle.
- When selecting "", the air handler's louver will stop at the fixed position.
- When selecting "", the air handler's louver will send air at the fixed angle.
- Hold the "" button for 2s to set your desired swing angle. Release the button once you are satisfied with the louver's position.

NOTE "" may not be available. The air handler receives this signal, the air conditioner will blow fan automatically.

5 CLOCK Button

Press this button to set the clock time. "" icon on remote controller will blink. Press the "+" or "-" button within 5s to set clock time. Each pressing of the "+" or "-" button will cause the clock time to increase or decrease 1 minute. If the "+" or "-" button are held longer than 2s time will change quickly. Release this button when you reach your desired temperature. Press the "CLOCK" button to confirm the time. "" icon stops blinking.

NOTE

- Clock time adopts 24-hour mode.
- The interval between two operations cannot exceed 5s, otherwise, remote controller will quit setting status. Operation for TIMER ON/TIMER OFF is the same.

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❼ TIMER ON/ TIMER OFF Button

TIMER ON - Button can set the timer for timed operation. After pressing this button, "🕒" icon disappears and the word "ON" on the remote controller blinks. Press the "+" or "-" button to adjust the TIMER ON setting. After each pressing of the "+" or "-" button, the TIMER ON setting will increase or decrease 1min. Hold the "+" or "-" button for 2s and the time will change quickly until reaching your desired time. Press the "TIMER ON" to confirm it. The word "ON" will stop blinking. "🕒" icon resumes displaying. To cancel the TIMER ON function, press "TIMER ON".

TIMER OFF - Button can set the time that the heating or cooling cycle would complete. After pressing this button, "🕒" icon disappears and the word "OFF" on remote controller blinks. Press "+" or "-" button to adjust the TIMER OFF setting. After each pressing of the "+" or "-" button, TIMER OFF setting will increase or decrease 1min. Hold the "+" or "-" button, for 2s, and the time will change quickly until reaching your desired time. Press the "TIMER OFF" to confirm it. The word "OFF" will stop blinking. "🕒" icon resumes displaying. To cancel the TIMER OFF function, press "TIMER OFF".

NOTE

- You can set the TIMER OFF or TIMER ON simultaneously.
- Before setting the TIMER ON or TIMER OFF, please adjust the clock time.
- After setting the TIMER ON or TIMER OFF, set the constant circulating valid. After that, the air handler will be turned on or turned off according to the set time. ON/OFF button has no effect on setting. If you do not need this function, please use the remote controller to cancel it.

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8 X-FAN Button

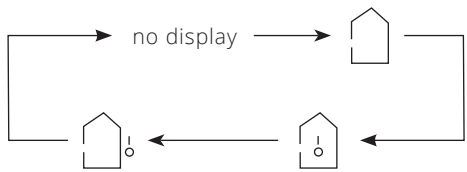
Press this button under cool and dry mode to start up x-fan function, and the "✙" icon will display on the remote controller. Press the button again to cancel x-fan function, and the "✙" will disappear.

NOTE

- When the x-fan function is on, if the air conditioner is turned off, the indoor fan will still operate on low speed for a few minutes to blow the residual water inside the air duct.
- During x-fan operation, press the X-FAN button to turn off the x-fan function. Indoor fan will stop operation immediately.

9 TEMP Button

By pressing the Temp button, you can see the indoor set temperature, indoor ambient temperature, or outdoor ambient temperature on indoor unit's display. The setting on the remote controller is selected circularly as below:



- When selecting "⌂" or no display with the remote controller, the temperature indicator on the indoor unit displays the set temperature.
- When selecting "⌂" with the remote controller, the temperature indicator on the indoor unit display will show the indoor unit ambient temperature.
- When Selecting "⌂" with the remote controller, the temperature indicator on the indoor unit display will show the outdoor ambient temperature.

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NOTE

- The outdoor temperature display is not available for some models. If the indoor unit receives "⌂" signal, it will display the indoor set temperature.
- The default display will show the set temperature when the unit is pressed on.
- When selecting the indoor or outdoor's ambient temperature, the display will show the selected valve for 3 seconds and return back to the set temperature.

⑩ TURBO Button

Under COOL or HEAT mode, press the Turbo button to engage the quick COOL or quick HEAT mode. The "✣" icon is displayed on the remote controller. Press this button again to exit the turbo mode and the "✣" icon will disappear.

⑪ SLEEP Button

Under COOL, HEAT, or DRY mode, press the sleep button to start the sleep function. The "☾" icon is displayed on the remote controller. Press this button again to the cancel sleep function and the "☾" icon will disappear.

SLEEP MODE

The unit will automatically adjust to room temperature during your sleep time. This slight change in temperature will not affect your comfort level due to natural effects that sleeping has on the body, but it will save on energy consumption and lower your electric bill. Press the SLEEP button to select Sleep Mode. The SLEEP icon will appear.

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In Cool or Dry modes: The unit will run at current room setpoint for 1 hour. After 1 hour, the setpoint will increase by 2°F. After 2 hours, the setpoint will increase by 4°F and maintain this setpoint until Sleep Mode is cancelled.

In Heat Mode: The unit will run at current room setpoint for 1 hour. After 1 hour, the setpoint will decrease by 2°F. After 2 hours, the setpoint will decrease by 4°F and maintain this setpoint until Sleep Mode is cancelled.

12 LIGHT Button

Press the light button to turn off the display on the indoor unit. The "☼" icon on the remote controller will disappear. Press this button again to turn on the display light. The "☼" icon will display once again.

Function for combination buttons

1 Child lock function

Press the "+" and "-" buttons simultaneously to toggle the child lock function. When the child lock function is on, the "🔒" icon is displayed on the remote controller. If any buttons are pressed while the remote controller is locked, the "🔒" icon will blink three times without sending the signal to the unit.

2 Temperature display switchover function

If the unit is off, pressing the "-" button and "MODE" buttons simultaneously will toggle between °C and °F.

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Operation Guide

1. After connecting the power, press the “ON/OFF” button on remote controller to power up the ductless mini split.

2. Pressing the “MODE” button will select your desired mode: AUTO, COOL, DRY, FAN, HEAT.

3. Press the “+” or “-” buttons to set your desired temperature. (The temperature cannot be adjusted when the unit is in auto mode).

4. Press the “FAN” button to set your desired fan speed: auto, low, medium, and high speed.

5. Press the “ ” button to select the fan blowing angle.

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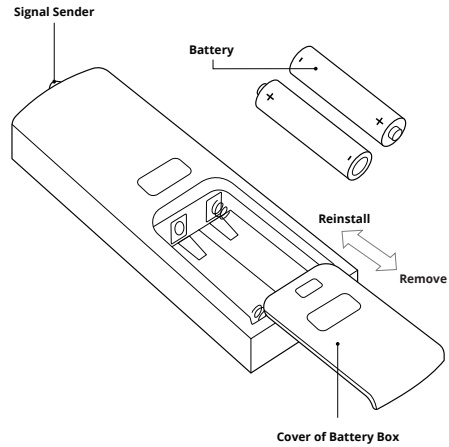
Replacement of batteries in remote control

1. Press the back side of remote controller on the spot marked "☞", and then pull the cover off of the battery box.
2. Replace two No.7 (AAA 1.5V) dry batteries and make sure the + and - positons are correct.
3. Reinstall the battery box cover



Img 17 | Back of High Seer Remote

NOTE

- During Operation, point the remote control signal sender at the receiving window on the indoor unit
- The distance between the signal sender and the receiving window should be no more than 26 feet, and there should be no obstacles between them.
- The signal may be interfered in the room where there are fluorescent lamp or wireless telephones.
- Replace both new batteries of the same model when replacement is required.
- If the remote will not be used for a long period of time, remove the batteries. Batteries can corrode and cause damage to the remote if left unused.
- If the display on remote controller is fuzzy or there's no display, please replace the batteries.

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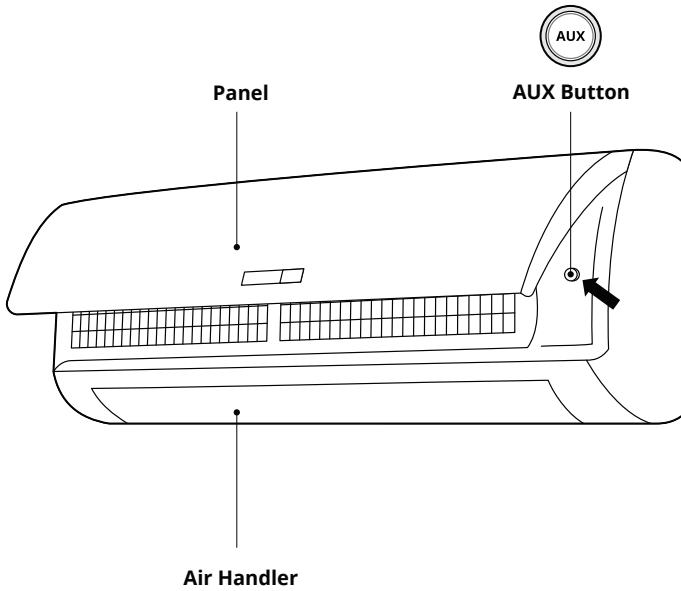
12.3 Emergency Operation

If the remote control is lost or damaged, the heat pump can be turned on and off by using the AUX button. The AUX button is located underneath the front panel on the right hand side. When the AUX button is pressed, the system will run in auto mode. In auto mode, the system will run off of optimal conditions based on the ambient temperature, and the temperature cannot manually be adjusted. The temperature settings are 77°F for cooling and 68°F for heating.



Img 18|Location of emergency operation button

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13 Cleaning and Maintenance

❶ Open Panel

Pull up on the front left and right of the air handler's cover as shown in figure 1

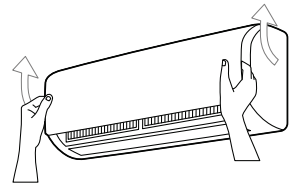

Figure 1

❷ Remove Filter

Remove the filter as indicated in figure 2. There are two filters, one on each side. Press up on the middle tab on each filter to take it out.

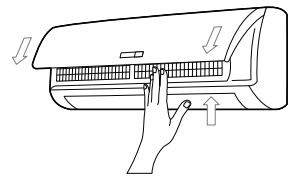

Figure 2

❸ Clean Filter

- Use dust catcher or water to clean.
- When the filter is very dirty, the water (below 113°F) to clean it, and then put it in a shady and cool place to dry.

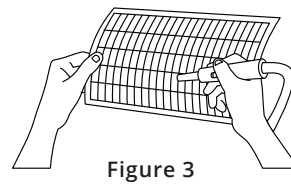

Figure 3

❹ Reinstall Filter

Reinstall the filter making sure the filter's two tabs are in the correct place and the middle of the filter is secured underneath the white tab, then close the panel cover.

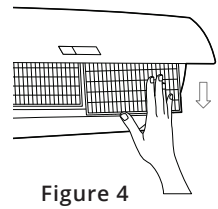

Figure 4

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NOTE

- The indoor air handler's filter should be cleaned every three months, but may require cleaning more often based on the conditions of the room. It is not harmful to increase the cleaning frequency.
- Use caution after the filter has been removed. The fins of the evaporator coil will be exposed and are very sharp. Do not touch the fins, as touching the fins can cause injury as well as a decrease in the unit's performance.
- Allow the filter to completely air dry (if cleaning using water). Do not use heat such as a hair dryer or a furnace's vent to dry the filter. Using heat to dry the filter can be a fire hazard or cause deformation of the filter.

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14 Operating Ranges

Operating ranges of Blueridge 15 SEER Single Zone Ductless Minisplits

	Indoor Side DB/WB (F)	Outdoor Side DB/WB (F)
Maximum Cooling	89.6 / 73.4	109.4 / 78.8
Maximum Heating	80.6	75.2 / 64.4

The operating temperature range (Outdoor Temperature) for cooling is 64.4 F ~109.4 F; for heating it is 19.4 F ~ 75 F.

The Operating Ranges of Blueridge 16 SEER Multizone and single zone, 18 SEER Single Zone, 20 SEER Single Zone, and 22 SEER Single Zone Ductless Minisplits

	Indoor Side DB/WB (F)	Outdoor Side DB/WB (F)
Maximum Cooling	89.6 / 73.4	109.4 / 78.8
Maximum Heating	80.6	75.2 / 64.4

The operating temperature range (Outdoor Temperature) for cooling is 5 F ~ 109.4 F; for heating it is 5 F ~ 75 F.

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15 Copper Line Length Guidelines

Single Zone - 15, 16, 18, 20, and 22 SEER Blueridge Minisplits

Unit Capacity (BTU's/Hour)	Min Line Set Length	Max Line set Length	Max Height Difference
9,000	10 Feet	50 Feet	15 Feet
12,000	10 Feet	66 Feet	30 Feet
18,000	10 Feet	82 Feet	30 Feet
24,000	10 Feet	82 Feet	30 Feet
30,000	10 Feet	100 Feet	30 Feet
36,000	10 Feet	100 Feet	60 Feet

Multi Zone - Since several different zones share the refrigerant of a multi-zone, the maximum line set lengths differ from the single zone systems.

The maximum line set length of any given zone is 66 feet on the multizone, not to exceed 246 cumulative feet for the system.

Exception: BMKH18DM-16-9W-9W and BMKH21DM16-9W-12W where maximum line length for each zone is 33 feet.

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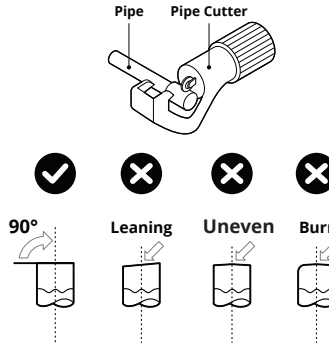
16 Copper Line Flaring

NOTE Improper pipe flaring is the main cause of refrigerant leakage. Please flare the pipe according to the following steps

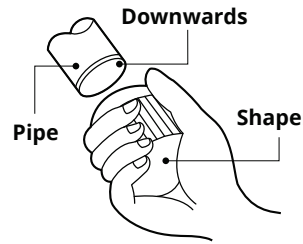
❶ Cut the Pipe

- Confirm the pipe length according to the distance of indoor unit and outdoor unit.
- Cut the required pipe with a pipe cutter



❷ Remove the burrs

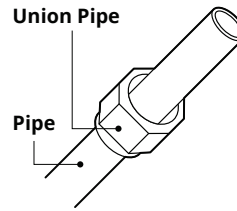
Remove burrs with a shaper to prevent the burrs from getting into the pipe



❸ Put on suitable insulating pipe

❹ Put on the union nut

Remove the union nut on the indoor connection pipe and outdoor valve; install the union nut on the pipe.



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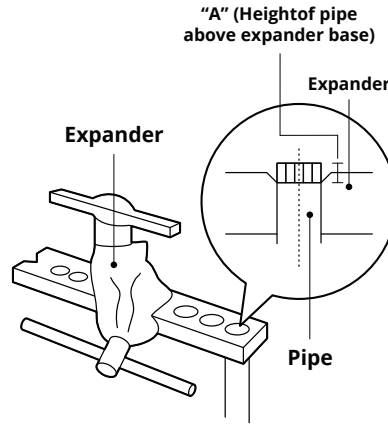
5 Flare the port

Flare the port with a flaring tool.

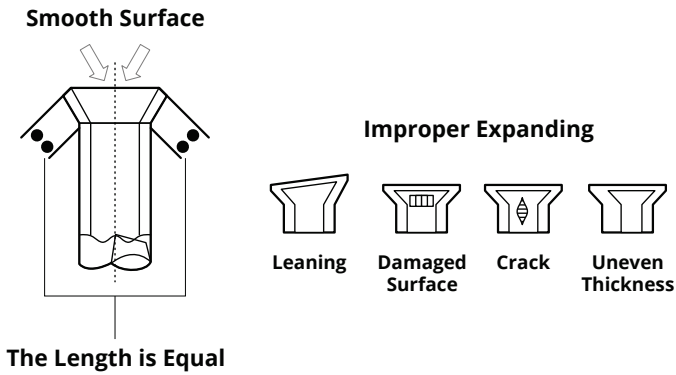
Note “A” is different according to the diameter, refer to the table below



Outer Diameter (mm)	A (mm)	
	Max	Min
6-6.35 (1/4”)	1.3	0.7
9.52 (3/8”)	1.6	1.0
12-12.7 (1/2”)	1.8	1.0
15.8-16(5/8”)	2.4	2.2

6 Inspect

Check the quality of the flaring port. If there is any blemish, flare the port again according to the steps above.



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17 Installing Optional Air Filters

- All Blueridge indoor air handlers come with air filters installed
- Optional air filters are available

To Install the Filter:

- Lift the front panel and remove the air filter
- Attach the optional filter into the air filter
- Reinstall the air filter and close the panel

18 Start Up

Complete a full system check prior to starting the system

- Make sure the drain hose slopes downward along entire length.
- Ensure the refrigerant pipes and connections are properly insulated.
- Fasten the pipes to the outside wall, whenever possible.
- Seal and weatherproof the wall hole where the multiconductor and refrigerant lines pass through.
- Turn on the electrical source and power up the outdoor unit.
- Push the ON/OFF button on the Remote Control to begin testing.

NOTE A protection feature prevents the system from being activated for approximately 3 minutes after power is initiated.

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Indoor Unit

- Ensure all remote buttons are responsive in functionality.
- Verify the indoor air handler is getting power by checking the indoor air handler's display panel is functional.
- After several minutes of operation, verify the indoor air handler's drain line is working properly. You should see a slow trickle of water exiting the drain line.

Outdoor Unit

- To test the outdoor compressor's cooling mode, push the mode button on the remote controller to COOL and adjust the room setting to 61 Degrees F. Wait approximately 3 minutes, as the compressor can take up to 3 minutes to engage due to the time guard feature. If the compressor engages and cool air is coming out of the air handler, the unit is successfully operating in Cooling mode.
- To test the outdoor compressor's heating mode, push the mode button to HEAT and adjust the room setting to 85 Degrees F. Wait approximately 3 minutes, as the compressor can take up to 3 minutes to engage, due to the time guard feature. If the compressor engages, and cool air is coming out of the air handler, the unit is successfully operating in Cooling mode.

NOTE Depending on the outdoor temperature when this test is done, Heating or Cooling may not function. If it's too hot outside, the heating function may not perform. If it's too cold, cooling function may not perform.

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19 Troubleshooting

Diagnostic Codes

E1 - High pressure protection

E6 - Communication Error

E7 - (Multizone only) Mode Conflict

F0 - Gathering Refrigerant / Unit is low on refrigerant (Leak)

F1 - Indoor air sensor failure

F2 - Indoor coil temp sensor failure

F3 - Outdoor air temp sensor failure

F4 - Outdoor coil temp sensor failure

F5 - Compressor discharge temp sensor failure

LP - Mismatched indoor/outdoor unit

PL - Low voltage

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